Amy G. Rabinowitz
Counsel

November 19, 2003

Mary L. Cottrell, Secretary
Department of Telecommunications and Energy
One South Station
Boston, MA 02110

Re: D.T.E. 03-20

Dear Secretary Cottrell:

I am enclosing the responses of Massachusetts Electric Company and Nantucket Electric Company to the Department's Second Set of Data Requests.

Very truly yours,

Amy G. Rabinowitz

Data Request DTE 2-1

Request:

Please describe the rationale underlying the Companies' proposal for the dispersal of its 2002 Service Quality Penalty regarding the (1) 1/3-2/3 split targeting all customers and affected customers, respectively, and (2) smoothing the distribution to all districts.

Response:

The Companies' proposed crediting mechanism was designed to achieve the Department's objective of concentrating the credit to customers that experienced substandard service. However, as mentioned in the Companies' filing letter of October 28, the Company does not maintain reliability performance records at the customer level. Further, the reliability metrics themselves are based on *system* averages, not individual customer experience. Nevertheless, while the Companies do not track reliability on an individual basis, the experience of each individual customer contributes to the determination of system-wide performance.

Individual customers will experience different reliability results, and this occurs throughout the system. As the system is divided into smaller and smaller pieces, individual customers within those smaller areas may still experience very different reliability results. Customers that are neighbors, served from two separate distribution feeders, or even different transformers on the same feeder, may have widely differing numbers of interruptions, or length of interruptions. While a District may have a higher than desired SAIDI and/or SAIFI, there will be some customers within that District that experienced no interruptions for the year. Conversely, in a District with much lower than average SAIDI and/or SAIFI, there will be some customers with much higher than desired reliability metrics. While no method exists to eliminate the seeming disparity of rewarding the customer with no interruptions who just happened to be in a District with high reliability metrics, it appears just as disparate not to recognize those customers with high individual reliability metrics in Districts with lower than average reliability results.

The Companies therefore designed the service quality credit to apply to all customers, with those customers in Districts with reliability above the penalty threshold receiving a greater portion of the credit. This proposed design recognizes the fact that some districts had poorer aggregate reliability performance, as compared to the system average, than others, but also takes into account that individual customers throughout the system may have experienced very different reliability performance, and that the reliability of service to each customer contributed to the overall system results. Although the 1/3-2/3 split proposed for allocating the penalty is somewhat arbitrary, it is intended to achieve the Department's objective of concentrating the credits, while recognizing the system-wide contribution from all customers to the results. Therefore, a rather simple and easily presented method of crediting one-third of the net penalty to

Data Request DTE 2-1 (continued)

all customers, recognizing the fact that some customers with no interruptions and other customers with experience higher than the penalty threshold would receive their share of this amount, and crediting two-thirds of the net penalty to those customers in the Districts that had experience that exceeded the penalty threshold.

The "smoothing" between the Districts was the result of two concepts. First, the service quality credit cannot be accomplished on a precise basis, matching credits to individual customer performance results. The Companies believe that the customers could accept, and the staffs of the Companies and the Department could explain, the fact that those customers in Districts with "worse" reliability received higher credits than those customers in Districts with "better" reliability. Second, for the Districts which experienced "worse" reliability, the metrics for those Districts not only exceeded the minimum penalty threshold, but also exceeded the maximum penalty threshold. Therefore, regardless of the relative reliability experience between the Districts, their overall reliability experience contributed equally to the Companies incurring a net penalty.

Prepared by or under the supervision of: James Bouford

Data Request DTE 2-2

Request:

       Please provide the corrected figures for Attachment I at 1, § 1, column (2), lines North Shore and South Shore.

Response:

       Mass. Electric has reviewed Attachment 1, page 1 and has confirmed that the figures represented on this page are correct.

Prepared by or under the supervision of: Theresa M. Burns

Data Request DTE 2-3

Request:

Please discuss the following alternative methods of refunding the penalty amount to customers: (1) credit customers in proportion to actual SAIDI and SAIFI performance in each district on a per kilowatt hour ("KWh") basis; (2) credit customers in proportion to SAIDI and SAIFI performance in each district that exceeded the Companies' benchmarks on a per KWh. Refer to the attached chart.

Response:

Briefly, SAIFI is calculated on a per customer basis, in both the numerator and denominator of the equation (e.g., the number of customer interruptions divided by the number of customers served). The number of customer interruptions is not the number of interruption events. It is the sum of all customers interrupted for all interruption events. There is no distinction between how long the interruption event lasted and how much customer load was interrupted.

SAIDI is calculated on the basis of the duration of the interruptions (e.g., the customer minutes of interruption divided by the customers served). Since this metric has a duration component, it is possible to make a correlation to kWh, even though it is not a direct and distinct correlation.

Although a service quality credit on a kWh basis could be calculated for both the SAIDI and SAIFI measures, the Companies believe that the basis of the credit should reflect the actual characteristic, or a reasonable proxy, of the metric that caused the penalty to be incurred. Thus, the service quality credit design proposed by the Companies attempts to reflect the "per cusstomer" and "duration" elements of the SAIFI and SAIDI metrics, respectively.

The credit alternatives in the spreadsheet provided to this data request present other feasible options for passing on to customers the net service quality penalty. However, these alternatives do not necessarily reflect the differing nature of the performance metrics, and may produce some other unintended consequences. For example, in both alternatives that accompanied the original data response, the Western District, with SAIDI and SAIFI values nearly equal to those of the Merrimack Valley District, has a credit per-kWh over twice that for the Merrimack Valley District. Additionally, the Western District's credit per-kWh is higher than that of the Central District although its SAIDI is significantly below the Central District's SAIDI.

Data Request DTE 2-3 (continued)

These results are the outcome of trying to aggregate the reliability metrics of smaller areas in order to determine the metrics of the whole area. This is due to the fact that neither the number of customer minutes per customer served nor the number of customer interruptions per customer served is equal across the service territory. If they were, then the proposed alternatives would be appropriate. But if this were so, then an equal allocation of the penalty would be possible and no special calculation would be required. Attachment 1 to this response presents an illustration of the problems that can result from trying to aggregate the component metrics to obtain a value of the whole area.

Attachment 2 and Attachment 3 are the Companies' attempt at modifying the Department's alternatives by utilizing the Districts' metric values as scaling factors, not of the metric value directly, but applied to the kWh usage per District, which is the basis upon which the Department's alternatives designed the credit. The total net penalty is then proportioned between Districts based upon this scaled kWh value (as well as by number of customers for SAIFI). The resulting per-kWh credits are proportional to the results of the metrics for each District.

While this method spreads the penalty to customers based upon the average reliability values for the District that they represent, it does not address the fact that SAIFI values are not kWh based, thereby reducing the total credit to low use customers. It also complicates the explanation of the application of the SAIFI-related service quality credit by attenuating the link between how SAIFI performance is calculated and how the credit is distributed. Alternative 2, which only credits those customers in Districts with reliability metrics above the penalty threshold, does not account for the fact that all customers contribute to the system reliability metric and that there are customers in those Districts with above average reliability that experience less than average reliability results. For the reasons stated in the response to DTE 2-1, the Companies recommend against Alternative 2.

In Attachment 2 (Alternative 1 modified) and Attachment 3 (Alternative 2 modified), the Companies have calculated SAIFI net penalty distributions on a per customer basis. The calculations are performed on a similar basis as presented in the per-kWh calculation presented in these attachments.

Prepared by or under the supervision of: James Bouford

Attachment 1

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Example: The Sum of the Parts do not Aggregate to the Whole

	CMI (1)	CS (2)	SAIDI (3)
Whole	300	100	3
Part 1	60	30	2
Part 2	60	25	2.4
Part 3	60	20	3
Part 4	60	15	4
Part 5	60	10	6
Sum of Parts	300	100 SUM	17.4
		AVE	3.48

(1)   Customer Minutes Interrupted
(2)   Customers Served
(3)   Column (1) ÷ Column (2)

Attachment 2

S:\RADATA1\2002 meco\Service Quality\October 28 SQ Credit Filing\[03-20 DTE DR-2nd set-Att to 2-3.xls]Alternative 1 Modified

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This alternative based upon the Credit per kWh being proportional to the Severity of the Reliability Metric

All credits on a per kWh basis

SAIDI

District	SAIDI	Scaling of SAIDI by Severity	KWh per District	kWh use factored by Scaled SAIDI	Net Penalty	Net Penalty Per District	Credit Per kWh
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Cen	337.82	0.30	388,476,900	117,958,983		848,598	$0.00218
MV	221.33	0.20	415,673,105	82,693,747		594,900	$0.00143
West	217.09	0.20	172,494,310	33,658,523		242,140	$0.00140
SE	145.99	0.13	378,557,695	49,674,745		357,361	$0.00094
NS	125.35	0.11	288,948,278	32,555,541		234,205	$0.00081
SS	64.97	0.06	301,860,117	17,627,839		126,815	$0.00042
TTL	1,112.55	1.00	1,946,010,405	334,169,377	$2,404,018	2,404,018	

(2) Column (1) ÷ total of Column (1)
(4) Column (2) x Column (3)
(6) [Column (5) ÷ total of Column (4)] x Column (4)
(7) Column (6) ÷ Column (3), truncated after 5 decimal places

SAIFI   Based on per kWh distribution

District	SAIFI	Scaling of SAIFI by Severity	KWh per District	kWh use factored by Scaled SAIFI	Net Penalty	Net Penalty Per District	Credit Per kWh
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
MV	2.26	0.23	415,673,105	93,661,138		$684,842	$0.00164
West	2.08	0.21	172,494,310	35,771,502		$261,558	$0.00151
Cen	1.95	0.19	388,476,900	75,526,416		$552,242	$0.00142
SE	1.67	0.17	378,557,695	63,030,045		$460,870	$0.00121
NS	1.17	0.12	288,948,278	33,705,831		$246,454	$0.00085
SS	0.90	0.09	301,860,117	27,086,152		$198,052	$0.00065
TTL	10.03	1.00	1,946,010,405	328,781,085	$2,404,018	$2,404,018	

(2) Column (1) ÷ total of Column (1)
(4) Column (2) x Column (3)
(6) [Column (5) ÷ total of Column (4)] x Column (4)
(7) Column (6) ÷ Column (3), truncated after 5 decimal places

SAIFI   Based on per customer distribution

District	SAIFI	Scaling of SAIFI by Severity	Average # of Cust per District	# of Cust factored by Scaled SAIFI	Net Penalty	Net Penalty Per District	Credit Per Cust
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
MV	2.26	0.23	233,309	52,570		$635,343	$2.72
West	2.08	0.21	114,326	23,709		$286,535	$2.50
Cen	1.95	0.19	219,182	42,613		$515,001	$2.34
SE	1.67	0.17	203,716	33,919		$409,930	$2.01
NS	1.17	0.12	230,066	26,837		$324,345	$1.40
SS	0.90	0.09	214,729	19,268		$232,864	$1.08
TTL	10.03	1.00	1,215,328	198,915	$2,404,018	$2,404,018	

(2) Column (1) ÷ total of Column (1)
(4) Column (2) x Column (3)
(6) [Column (5) ÷ total of Column (4)] x Column (4)
(7) Column (6) ÷ Column (3), truncated after 2 decimal places

Attachment 3

S:\RADATA1\2002 meco\Service Quality\October 28 SQ Credit Filing\[03-20 DTE DR-2nd set-Att to 2-3.xls]Alternative 2 Modified

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This alternative based upon the Credit per kWh being proportional to the Severity of the Reliability Metric, for those Districts above deadband levels.

All credits on a per kWh basis

SAIDI

District	SAIDI	Scaling of SAIDI by Severity	KWh per District	kWh use factored by Scaled SAIDI	Net Penalty	Net Penalty Per District	Credit Per kWh
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Cen	337.82	0.32	388,476,900	125,274,696		$895,856	$0.00230
MV	221.33	0.21	415,673,105	87,822,341		$628,029	$0.00151
West	217.09	0.21	172,494,310	35,745,995		$255,624	$0.00148
SE	145.99	0.14	378,557,695	52,755,530		$377,262	$0.00099
NS	125.35	0.12	288,948,278	34,574,607		$247,248	$0.00085
SS	0.00	0.00	301,860,117	0		$0	$0.00000
TTL	1,047.58	1.00	1,946,010,405	336,173,170	$2,404,018	$2,404,018	

(2)   Column (1) ÷ total of Column (1)
(4)   Column (2) x Column (3)
(6)   [Column (5) ÷ total of Column (4)] x Column (4)
(7)   Column (6) ÷ Column (3), truncated after 5 decimal places

SAIFI   Based on per kWh distribution

District	SAIFI	Scaling of SAIFI by Severity	KWh per District	kWh use factored by Scaled SAIFI	Net Penalty	Net Penalty Per District	Credit Per kWh
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
MV	2.26	0.28	415,673,105	118,017,741		$840,195	$0.00202
West	2.08	0.26	172,494,310	45,073,890		$320,891	$0.00186
Cen	1.95	0.24	388,476,900	95,167,080		$677,516	$0.00174
SE	1.67	0.21	378,557,695	79,421,024		$565,416	$0.00149
NS	0.00	0.00	288,948,278	0		$0	$0.00000
SS	0.00	0.00	301,860,117	0		$0	$0.00000
TTL	7.96	1.00	1,946,010,405	337,679,735	$2,404,018	$2,404,018	

(2)   Column (1) ÷ total of Column (1)
(4)   Column (2) x Column (3)
(6)   [Column (5) ÷ total of Column (4)] x Column (4)
(7)   Column (6) ÷ Column (3), truncated after 5 decimal places

SAIFI   Based on per customer distribution

District	SAIFI	Scaling of SAIFI by Severity	Average # of Cust per District	# of Cust factored by Scaled SAIFI	Net Penalty	Net Penalty Per District	Credit Per Cust
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
MV	2.26	0.28	233,309	66,241		$827,036	$3.54
West	2.08	0.26	114,326	29,874		$372,986	$3.26
Cen	1.95	0.24	219,182	53,694		$670,384	$3.05
SE	1.67	0.21	203,716	42,739		$533,612	$2.61
NS	0.00	0.00	230,066	0		$0	$0.00
SS	0.00	0.00	214,729	0		$0	$0.00
TTL	7.96	1.00	1,215,328	192,549	$2,404,018	$2,404,018	

(2)   Column (1) ÷ total of Column (1)
(4)   Column (2) x Column (3)
(6)   [Column (5) ÷ total of Column (4)] x Column (4)
(7)   Column (6) ÷ Column (3), truncated after 2 decimal places